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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/391,059	09/07/1999	VASUDEVAN PARTHASARATHY	RCA88495	8006

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EXAMINER	
CHANG, EDITH M	
ART UNIT	**PAPER NUMBER**
2637	

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/391,059	PARTHASARATHY ET AL.	
	Examiner	Art Unit	
	Edith M Chang	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16,18 and 19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-16,18 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 September 1999* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the appeal brief filed on November 24, 2004, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Drawings

2. Figure 1 to Figure 10 and Figure 12 to Figure 15 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 3-4, 7, 15-16, and 19 are objected to because of the following informalities:

Claims 3 & 7, line 3: "feed-back" is suggested changing to "the feed-back".

Claim 4, line 4 & Claim 15, line 5: "determined minimum" is suggested changing to "the determined minimum".

Claim 19, line 1: "A decoder" is suggested changing to "A trellis decoding apparatus".

Claims 16 is dependent on the objected claim 15.

Appropriate correction is required.

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 4, 10 and 11 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The element of providing, generating, or computing the candidate values representative of distance is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

The claim 4 and claim 10 are directly dependent on claim 1 and 5 respectively, wherein delayed data, re-encoded symbol data, difference data, and decoded symbol data are provided or generated, however there is no candidate values representative of distance provided, generated, or computed for comparing in the claim 4 and claim 10. Hence the element of providing,

generating, or computing the candidate values representative of distance is not included in claims for the invention of "comparing candidate values representative of distance" recited in the claims.

Claim 11 is dependent on the rejected claim 10.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 4, 9-11, and 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4, line 3: "determine minimum distance values" is not understood that how a plural number of minimum distance values being determined from comparing candidate values, that minimum distance value is the smallest or the least distance value of the candidate values, hence there is only one minimum distance value among the candidate values. The claim fails to clearly indicate the subject matter of how to compare candidate values to determine minimum distance values;

line 4: "resolving equality between determine minimum distance values" is not understood that if there is a plural number of the determine minimum distance values from comparing candidate values, these minimum distance values should be different, then how to resolve equality between these minimum distance values. The claim fails to clearly indicate the subject matter of how to resolve equality between the determined minimum distance values determined from comparing candidate values.

Claim 9, line 4 & Claim 14 line 2: "comparing computed absolute distance values" is not understood. Since the decision processor *computes an absolute distance* using the difference data and the delayed data for the decoded symbol data, where and how does the comparator get and compare *computed distance values*. Hence these computed distance values are undefined. The claim fails to clearly indicate the subject matter of comparing computed absolute distance values that the decision processor computes an absolute distance using the difference data and the delayed data for the decoded symbol data.

Claim 10, line 4: "determine minimum distance values" is not understood that how a plural number of minimum distance values being determined from comparing candidate values wherein minimum distance value is the smallest or the least distance value of the candidate values, there is one minimum distance value among the candidate values. The claim fails to clearly indicate the subject matter of how to compare candidate values to determine minimum distance values; and

line 5: "resolving equality between determine minimum distance values" is not understood that if there is a plural number of the determine minimum distance values from comparing candidate values, these minimum distance values should be different, then how to resolve equality between these minimum distance values. The claim fails to clearly indicate the subject matter of how to resolve equality between

Claim 11, line 3: "candidate minimum distance values" does not clearly indicate that these values are "candidate values representative of distance recited in line 3 of claim 10, or "determined minimum distance values" recited in line 5 of claim 10.

Claims 14-16, line 1: "said processor" does not clearly indicate which processor it is; the processor including a feed-forward processor, the feed-forward processor, or the decision processor. The claim fails to clearly indicate the subject matter of the "said processor".

Claims 15, line 4: "determine minimum distance values" is not understood that how a plural number of minimum distance values being determined from comparing candidate values wherein minimum distance value is the smallest or the least distance value of the candidate values, there is one minimum distance value among the candidate values. The claim fails to clearly indicate the subject matter of how to compare candidate values to determine minimum distance values; and

lines 4-5: "resolving equality between the determine minimum distance values" is not understood that if there is a plural number of the determine minimum distance values from comparing candidate values, these minimum distance values should be different, then how to resolve equality between these minimum distance values. The claim fails to clearly indicate the subject matter of how to resolve equality between the determined minimum distance values from comparing candidate values.

Claim 16, line 2: "candidate distance values" does not clearly indicate which distance values; the candidate values representative of distance recited in line 3 of claim 15, or the distance values determined in line 4 claim 15. The claim fails to clearly indicate the subject matter of the "candidate distance values".

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-3, 5-8, 12-13, and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Hu et al. (US Patent 5914988).

Regarding **claims 1, 5 & 8**, in FIGURE 1, Hu et al. teaches a decoder and its method, it comprises a delay element (70) for delaying the received DATA 1 (column 3 lines 30-35) to produce delayed data; a re-encoder (50) for re-encoding the received decoded data (output 40) to produce re-encoded symbol data; and a trellis demapper (processor 60, details shown in FIGURE 11, column 7 lines 22-26 wherein the distance is computed/provided) for feed-forward processing the re-encoded symbol data sequentially (column 13 lines 49-51) to produce difference data representative based on the RE-ENCODED DATA from the re-encoder (unite 50) and the delayed version of the re-encoded data (one symbol delay via 965 FIGURE 11) (column 14 lines 22-26, wherein the Z0 and Z1 are the re-encoded data) to select the sequential constellation points to derive the decoded data to byte assembler 90 (column 4 lines 29-34) via unit 977 (FIGURE 11) which is as the decision processor deriving the decoded data (column 13 lines 64-column 14 line 4).

Regarding **claims 2 & 6**, Hu et al. discloses the feed-forward processing is exclusive of feed-back processing wherein (which is) the delayed data (70->60 FIGURE 1) used in demapper.

Regarding **claims 3 & 7**, Hu et al. discloses the feed-forward processing prevents error induced by feed-back processing (FIGURE 11 977->970).

Regarding **claim 12**, Hu et al. discloses the processor derives decoded symbol data in a partial response system (10 FIGURE 1, column 3 lines 9-20).

Regarding **claims 13 & 18**, in FIGURE 1, Hu et al. teaches a decoder in a system for processing encoded data symbols and its method, it comprises a delay element (70) for delaying the received DATA 1 (column 3 lines 30-35) to produce delayed data; a re-encoder (50) for re-encoding the received decoded data (output 40) to produce re-encoded subset data (column 13 lines 60-64); and a trellis demapper (processor 60, details shown in FIGURE 11, column 7 lines 22-26 wherein the distance is computed) for feed-forward processing the re-encoded symbol data sequentially (column 13 lines 49-51) to produce difference data representative based on the re-encoded data from the re-encoder (unite 50) and the delayed version of the re-encoded data (one symbol delay via 965) (column 14 lines 22-26, wherein the Z0 and Z1 are the re-encoded data) to select the sequential constellation points to derive the decoded data to byte assembler 90 (column 4 lines 29-34) via unit 977 which is as the decision processor.

Regarding **claim 19**, in FIGURE 1, Hu teaches the processor (60) using subset outputs from the re-encoder (50) instead of decoded bits themselves. In FIGURE 11, the processor uses the RE-ENCODED DATA from unit 50.

Allowable Subject Matter

10. Claims 9, and 14-16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims; and overcome the objections set forth in this Office action.

11. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest, alone or in a combination, among other things, at least a decoder and its method as a whole, the combination of elements and features, which includes a processor for feed-forwarding processing the re-encoded symbol data including a comparator or a processor for comparing distance values computed by a processor for computing the distance values to determine the minimum distance value.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayanti Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
March 4, 2005

YOUNG T. TSE
PRIMARY EXAMINER